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Remarks

This amendment and remarks is presented in response to the Office Action dated February 1, 2007. Claims 1, 3, 5-6, 8-9, 14-15, 17, 19, 21-23 and new claim 24 remain in the application. Applicant has included herewith a Petition for a three month extension of time with the appropriate fee of \$510.00. In the event that the response herein requires the payment of additional government fees and payment is not enclosed, please charge Deposit Account No. 22-0350.

In paragraph 1 of the Office Action of February 1, 2007 the Examiner asserted that the Applicants specification failed to provide enablement for how the vents are constructed and arranged to minimize sound report, and the Examiner asserted that Applicant's specification does not in and of itself enable one of ordinary skill in the art to make, or position, the vents without undue experimentation. Applicant respectfully traverses the position of the Examiner. Applicant has previously submitted the declarations of Alan Corzine and Scott Christ, pursuant to 37 C.F.R. §1.132, as individuals having ordinary skill in the art, who have reviewed Applicant's specification and claims, and who have stated that they would be able to make and position the vents along the length of the elongated gun barrel to minimize sound report occurring at the muzzle end without undue experimentation.

As long as the specification discloses at least one method of making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. ' 112 is satisfied. In re Fisher, 427 F. 2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).

A specification disclosure which contains a teaching of the manner and process of

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making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. ' 112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein, which must be relied upon for the enabling support. MPEP §2164.04.

In this case the specification on page 6 beginning on lines 4 and 5 includes the following disclosure:

In at least one embodiment, as depicted in figures 1 and 2, a first sector 32 of vents 30 is proximate to the breach end 14. In the first sector 32, adjacent ports 30 are spaced four inches from each other. The sector 32 of ports 30 which is centrally disposed between the breach end 14 and the muzzle end 16 preferably includes vents 30 having a three inch spacing between adjacent ports 30. The sector 32 of vents 30 proximate to the muzzle end 16 preferably includes ports 30 having a two inch spacing between adjacent vents 30. The spacing between adjacent vents 30 decreases in dimension between sectors along the length of the barrel 10 moving outwardly from the breach end 14 toward the muzzle end 16. In other words, a larger number of ports 30 are provided in the sector 32 adjacent to the muzzle end 16, as compared to the sector 32 proximate to the breach end 14. In addition, the spacing between adjacent vents 30 proximate to the muzzle end 16 is reduced as compared to the spacing between adjacent ports 30 proximate to the breach end 14.

The above description is fully supported and depicted in figures 1-3 of the application herein. In addition, applicant has previously submitted declarations of two individuals possessing at minimum, a level of ordinary skill in the art, where both of the declarants have indicated that they would have been able to make or use the invention from the disclosure provided in the patent, coupled with the information known in the art, without undue

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experimentation. This is all that is required. In re Buchner, 929 F.2d 660, 661, 861, 18 USPQ 2d 1331, 1332 (Fed. Cir. 1991). In light of the disclosure of the specification and drawings, and the previously provided declarations of Alan Corzine and Scott Christ, the specification must be taken as being in compliance with the enablement requirement of 35 U.S.C. ' 112, first paragraph, unless the examiner has a reason to doubt the objective truth of the statements contained in the specification and the matters identified in the declarations of Alan Corzine and Scott Christ. The examiner has not identified and articulated any such reason to doubt the objective truth of the statements of the specification and the declarations of Alan Corzine and Scott Christ. Therefore, applicant respectfully asserts that the examiner is asserting matters within the examiner's own knowledge to reject claims for which applicant requests a declaration pursuant to 37 C.F.R. ' 1.104 (d)(2). Applicant respectfully asserts that the examiner's rejection of applicant's claims herein as being not enabled under 35 U.S.C. ' 112, is in error and should be withdrawn.

The previously submitted Declarations indicate that Applicant's specification does teach one of ordinary skill in the art how to make or position the vents along the barrel to minimize sound report at the muzzle end without undue experimentation. Applicant respectfully requests the Examiner reconsider and withdraw the rejection.

In paragraph 2 of the Office Action dated February 1, 2007 the Examiner asserted that the Schumacher 5,315,914 reference taught that the vents of Schumacher are open directly to the atmosphere because the adjacent barrel is at atmospheric pressure. Applicant respectfully traverses the Examiner's assertion as to the teachings of the Schumacher '914 reference.

The Schumacher '914 patent teaches in essence an over-under or side-by-side barrel configuration for a firearm. In the Schumacher '914 reference, both barrels each have a

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muzzle end having a discharge opening. The **discharge opening** is not a vent as disclosed and claimed by Applicant herein.

Applicants amended claim 1 herein specifically claims "said vents being constructed and arranged to minimize sound report by gradual releases of gasses *directly* to the surrounding atmosphere through said vents along said length dimension of said barrel toward said muzzle end". Claim 1 as amended herein recites "one elongate barrel having a breach end, a muzzle end, and a **discharge opening**". Within Applicants claim 1, the vents are separate and distinct elements from a **discharge opening** of a single elongate barrel.

The Schumacher '914 reference discloses vents into an adjacent barrel, which acts as the chamber of a gun silencer, where the gasses from the chamber of the defacto silencer subsequently empty into the atmosphere through the discharge opening of the muzzle end off a weapon barrel. In the Schumacher '914 reference, gasses exit into the adjacent barrel which acts as a chamber of a gun silencer and **not through a vent *directly* into the surrounding atmosphere** as claimed by Applicant herein. The differences as identified and as claimed by applicant could not be more apparent.

The Schumacher '914 reference discloses the release of gas into another barrel. The alleged vents of Schumaker '914 do not open *directly* into the atmosphere just because the open muzzle end is an opening. The opening in the muzzle end of Schumaker '914 opens *directly* into the atmosphere not the Schumaker '914 vents.

The Schumacher '914 reference fails to suggest or teach the **gradual** release of gasses **directly** to a surrounding atmosphere through the vents along the length dimension of a elongate barrel toward the muzzle end of a firearm, minimizing gas pressure and sound report proximate to the muzzle end.

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The Schumacher '914 reference also does not disclose an elongated barrel having at least two sectors and the vents being spaced within at least one of said sectors by a distance of at least two inches between adjacent vents and said vents being spaced within at least one of said sectors by a distance of at least three inches between adjacent vents, said sector having said vent spacing distance of at least two inches beings disposed proximate to said muzzle end.

Also in paragraph 2 of the Office Action of February 1, 2007 the Examiner asserted that Applicant has not disclosed how to construct and arrange the vents in order to minimize sound report other than that disclosed by Renner U.S. Patent No. 5,844,162.

Applicant respectfully asserts that the specification does provide enablement for how the vents are constructed and arranged to minimize sound report as identified in the specification on page 6 and drawing figures 1-3 specifically mentioned above.

The specification also further teaches that more vents help to minimize sound report because the high pressure gasses are slowly released through the vents positioned along the length of the barrel instead of being released instantaneously from the muzzle of the gun: "[t]he use of elongated vented gun barrel 10 enables the gradual release of high pressure gasses through the vents 30 to reduce sound report and sound pressure intensity emanating from the muzzle 16 by the time a projectile reaches the muzzle 16 following discharge of the ammunition. An increase in the length dimension of the elongated vented gun barrel 10 in turn, provides more space to strategically place vents 30, and more time to slowly release gas pressure in the barrel to minimize report" (page 6, lines 19-24). In addition, the general description states that one advantage of the present invention is "the controlled release of high pressure gasses more slowly to significantly reduce the sharpness of the report of a firearm" (page 2, lines 14-16). In another advantage is "the gradual and controlled venting of high pressure gasses to minimize firearm

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report" (page 2, lines 19-20).

In addition, the specification teaches that the position of the vents about the circumference of the barrel may be varied: "[t]he vents 30 as disposed within each section 32 may be aligned in a pattern of straight lines, offset lines, random spacing, and/or spiral configuration" (page 5, line 31- page 6, line 1).

Figures 1-3 illustrate the vents 30 positioned along the length of the elongated vented gun barrel 10. The figures also illustrate "vents 30 disposed within each sector 32 are regularly spaced from adjacent vents 30" (page 5, lines 19-20). The figures also illustrate that the spacing between vents can be different for different sectors. For example, Figure 2 shows a firearm with three sectors, each sector having different spacing between vents: The sector closest to the breach end has four inch spacing between vents, the middle sector has three inch spacing between vents, and the sector closes to the muzzle end has two inch spacing between vents (see Figs. 1, 2, and 3).

Applicant respectfully asserts that Figures 1, 3, and 6 of Renner teach a barrel with six tightly spaced vents positioned on each side of the barrel near the muzzle end of the rifle with no other vents positioned along the length of the barrel. According to Renner, '162 it is important that two sets of vents have a symmetrical arrangement to the vertical axis of the barrel in order to prevent sideways movement of the muzzle upon firing or vibration of the barrel which would affect shot accuracy and could not be controlled (column 4, lines 15-16 and column 4, lines 21-24). In addition, Figure 3 of Renner illustrates that the position of the vents is controlled by the spiral rifling of lands and grooves and it is unclear if the vents can be positioned along the length of the barrel when each vent is "contained entirely within rifle and grooves" and cannot be "contained within a land" or "cut into the shoulder of a land". In addition, Renner teaches that

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barrel venting has been used for some period of time (column 1, 40-46) and the Renner patent addresses the problems peculiar to muzzle loading rifles (column 1, 47-67) which include damage from vents or ports to wadding or patches used in muzzle loading rifles.

In addition, the Renner '162 reference teaches that "the vents of the present invention appear to scatter the blast (sound), upon the firing a muzzle loading rifle. In experimental tests of prototypes while hunting, game appeared to be unable to detect the source of the sound, and were thus not able to use the sound to detect the location of the hunter" (column 3, lines 16-21). Thus, according to Renner, the game can hear the sound of the muzzle loading rifle being fired, but the game cannot discern the location of the rifle because the sound is directed outward from the rifle in multiple directions instead of one direction.

Since the sound of the rifle firing is merely scattered to multiple directions and not minimized, the vents of the Renner '162 reference are not "constructed and arranged" or "positioned along the length dimension of the barrel" to "minimize sound report" as required by independent claims 1 and 19 of the instant application.

Further, Applicant respectfully asserts that Renner '162 does not teach or suggest minimization of sound. As pointed out in the Office Action of April 15, 2005, Renner teaches reduced recoil and dispersed smoke and sound (column 2, lines 10-25) "dispersed" is not the same as "reduced"; "dispersed" is to "redirect". Applicant's claims herein are to the reduction and minimization of sound, not the redirection of sound. Renner '162 does not disclose or suggest sound reduction. Applicant respectfully asserts that the Renner '162 reference teaches the use of a greater jet force to reduce recoil and muzzle rise which will result in greater "annoyance (noise)". The increased noise associated with ported or vented barrels proximate to the muzzle end as taught in Renner '162 is well-established in the shooting

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community, as Applicant has previously identified within specimens A, B, C, D, E1, E2, F, G, and H, as submitted in response to the Office Action of April 15, 2005.

In paragraph 3 of the Office Action of February 1, 2007 the Examiner objected to claim terms of 3 ½ feet and 3/8 inch as being new matter. Applicant believes that the amendment to claims herein renders the Examiner's objection herein moot. The specification teaches that the barrel may have a length of greater than 3 feet and less than 12 feet. If applicant elects to disclaim a portion of this range, to claim dimensions of greater than 4 feet and less than 12 feet, then the applicant has not added new matter.

In paragraph 5 of the Office Action of May 19, 2006, the Examiner rejected claims 1-3, 5, 6, 8, 9, 12, 14, 15, 17, 19 and 21-23, pursuant to 35 U.S.C. §112 first paragraph asserting that the specification does not reasonably provide enablement for how the vents are constructed and arranged to minimize sound report without undue experimentation.

Applicant respectfully traverses the assertion of the Examiner herein. Applicant respectfully directs the examiner to the matters as identified above which are equally applicable to paragraph 5 of the office action of February 1, 2007. Applicant respectfully requests the Examiner to reconsider and withdraw the rejection pursuant to 35 U.S.C. §112 in view of the Declarations of Alan Corzine and Scott Christ as previously submitted and in view of the specification disclosure on page 6 as well as the disclosure of figures 1-3 of the application as filed.

In paragraph 6 of the Office Action of February 1, 2007 the Examiner rejected claims 1-3, 5, 6, 8, 9, 12, 14, 15, 17, 19, and 21-23, pursuant to 35 U.S.C. §112 first paragraph as not being enabling as to how the vents are constructed and arranged to minimize sound report. The Examiner also asserted that the Renner '162 reference disclosed a barrel having vents or

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ports positioned along the length of the barrel, the vents initiating beyond 12 inches from the breach end.

Applicant has previously identified the deficiencies of the Renner '162 reference, which Applicant repeats and incorporates by reference herein in its entirety. For the reasons stated previously above, the Renner '162 reference fails to teach and/or suggest the elements of Applicants claims as amended herein.

In paragraph 7 of the Office Action of February 1, 2007 the Examiner rejected claims 1-3, 5, 6, 8, 9, 12, 14, 15, 17, 19, and 21-23, pursuant to 35 U.S.C. §112 first paragraph as failing to comply with the written description requirement. Applicant traverses this rejection. Applicant asserts that the specification as filed with figures 1-3, along with the amendment to the specification on page 6, as identified above, fully complies with the written description requirements of 35 U.S.C. §112 first paragraph. For the reasons stated previously above, applicant respectfully requests that the rejection pursuant to 35 U.S.C. §112 first paragraph be withdrawn.

In paragraph 8 of the Office Action of February 1, 2007 the Examiner rejected claims 1-3, 5, 6, 8, 9, 12, 14, 15, 17, 19 and 21-23, pursuant to 35 U.S.C. §112 second paragraph as being incomplete for omitting essential elements, such omission amounting to gaps between the elements. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of claims 1-3, 5, 6, 8, 9, 12, 14, 15, 17, and 19-23, as amended herein. Applicant respectfully asserts that the claims as amended herein are not incomplete and include all essential elements and that no omission in the claim exists amounting to gaps between the elements of the claims. Specifically, so that the examiner may understand the invention, the plurality of vents positioned as claimed, gradually release gas along the length of the vented barrel, which is the

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structure to minimize sound report.

In paragraph 10 of the Office Action of February 1, 2007 the Examiner rejected claims 1-3, 5, 6, 8, 9, 12, 14, 15, 17, 19 and 21-23, pursuant to 35 U.S.C. §112 second paragraph as being indefinite as related to the term "approximately". Applicant respectfully asserts that the amendments herein render this rejection moot.

In paragraph 12 of the Office Action of February 1, 2007 the Examiner rejected claims 1-3, 5, 6, 8, 9, 12, 14, 15, 17, 19 and 21-23, pursuant to 35 U.S.C. §103(a) asserting Schumacher '914. Applicant incorporates Applicants earlier remarks related to the Schumacher '914 reference herein in their entirety. Applicant has previously identified that the Schumacher '914 reference does not suggest, teach, and/or disclose one elongate barrel having a breach end, a muzzle end, and a discharge opening where the elongate barrel has a length dimension of at least 4 feet. In addition, the Schumacher '914 reference fails to suggest, teach, and/or disclose a plurality of vents disposed along the length dimension of the barrel for gradual release of gasses directly to the surrounding atmosphere minimizing gas pressure proximate to said muzzle end.

The Schumacher '914 reference also does not disclose an elongated barrel having at least two sectors and the vents being spaced within at least one of said sectors by a distance of at least two inches between adjacent vents and said vents being spaced within at least one of said sectors by a distance of at least three inches between adjacent vents, said sector having said vent spacing distance of at least two inches being disposed proximate to said muzzle end.

For the reasons identified herein, Applicant specifically asserts that Applicant's claims as amended herein are not obvious over the Schumacher '914 reference.

Applicant respectfully asserts that the Schumacher '914 reference does not disclose or suggest all of the elements of the amended claims as identified by Applicant herein.

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When reviewed by a person of ordinary skill in the art the Schumacher '914 reference does not teach or suggest the use of an elongate barrel having at least two sectors where the vents are spaced within at least one of the sectors by a distance of at least two inches between adjacent vents and the vents are spaced within a second sector by a distance of at least 3 inches between adjacent vents where the sector having the vents spacing of at least 2 inches is position proximate to the muzzle end, and therefore does not establish a *prima facie* case of obviousness. Further, Applicant respectfully asserts that there is not motivation to modify Schumacher '914 to arrive at Applicants claims as amended herein. Schumacher '914 is specifically directed to a double barrel firearm. Schumacher provides no disclosure or insight into sound minimization for a single barrel firearm.

The Declarations of Alan Corzine and Scott Christ as previously submitted specifically indicate that Applicant's invention as claimed herein is not obvious to a person of ordinary skill in the art following a review of the Schumacher '914 reference and/or the Renner '162 reference. Applicant therefore respectfully requests that the Examiner reconsider and withdraw the rejection of Applicant's claims as amended herein pursuant to 35 U.S.C. §103(a).

It is impermissible to engage in hindsight reconstruction of the claimed invention using the Applicants disclosure and claims as a template for selecting elements from the references to fill the gaps. *Interconnect Planning* 774, F.2d at 1143, 227 U.S.P.Q. at 551. The references themselves must provide some teaching whereby Applicant's combination would have been obvious. *In re Gorman* 18 U.S.P.Q.2d 1885, 1888 (Fed. Cir. 1991). Applicant therefore respectfully requests the withdrawal of the rejection of claims 1, 3, 5, 6, 8, 9, 14, 15, 17, 19, 21-23, and 24 herein.

As discussed above, the references themselves must provide some basis for

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combining selected elements, without using Applicant's own invention as a template in selecting such elements from these references. See *in re Gorman* 18 U.S.P.Q.2d at 1888.

One of ordinary skill in the art would not make such a leap as asserted by the Examiner herein. Applicant therefore respectfully requests the reconsideration and withdrawal of the rejection pursuant to 35 U.S.C. §103 herein.

In paragraph 13 of the Office Action of February 1, 2007 the Examiner rejected claims 1-2, 9, 10, 12-15, 19 and 22, pursuant to 35 U.S.C. §103(a) asserting Maxim '386 over The Illustrated Book of Guns. GUNS as referenced is silent as to ports being used for noise reduction and is used solely to provide evidence that barrels 3 ft in length are known in the art. Thus, a finding of obviousness is misapplied. The barrels having a 3 ft length in the GUNS reference, as stated above, are not vented nor does the GUN reference teach or suggest the desirability of having a ported barrel. For at least this reason the asserted combination is not suggested and is inappropriate.

Again, the instant invention teaches noise *reduction* through the gradual venting of the gases through vents along the length of the barrel. Merely having ports does not provide this noise reduction, as evidenced in the prior art and submitted specimens. Thus, the obviousness rejection is misapplied for the additional reason that the prior art teaches away from achieving noise reduction through the use of ports/vents. Applicant respectfully requests that the obviousness rejection be withdrawn.

The Maxim U.S. Patent No. 880,386 teaches the use of a barrel having a piston chamber 7 containing a piston 8. The piston 8 serves as a valve with in the piston chamber 7. The piston 8 is engaged to a spring 12 which is used to assist in returning the valve or piston to its initial position following the discharge of a firearm. The Maxim '386 patent teaches that the

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actuation of the valve 8 within the piston chamber 7 regulates the discharge of gas to control noise.

The Maxim '386 patent fails to suggest or teach the gradual release of gases directly into the surrounding atmosphere through the positioning of a plurality of vents along the length dimension of an elongate barrel toward to muzzle end of a firearm, minimizing gas pressure and sound report proximate to the muzzle end. The Maxim '386 patent also does not disclose an elongate barrel having at least two sectors and the vents being spaced within at least one of the sectors by a distance of at least two inches between adjacent vents and the vents being spaced within a second sector by a distance of at least three inches between adjacent vents, where the sector having the vent spacing distance of at least two inches is disposed proximate to the muzzle end of the barrel.

A person of ordinary skill in the art upon review of the Maxim '386 patent or the GUNS reference, would have been taught to include a piston valve in a gun barrel to minimize noise reduction. This teaching would direct a person of ordinary skill in the art away from the teachings of applicant herein. There is no teaching provided in either the Maxim '386 patent or the GUNS reference to suggest the use of a plurality of vents along the length of an elongate barrel to gradually release gas pressure to minimize sound report. The prior art combination of Maxim in view of GUNS teaches away from applicant's invention herein. A person of ordinary skill in the art would not have been motivated to combine the Maxim and the GUNS reference to provide for applicant's invention herein. The asserted combination of Maxim '386 with GUNS is therefore inappropriate with respect to applicant's claims as amended herein.

In addition, none of the references cited teach or suggest a barrel having a length of approximately 7 feet. In the instant invention, the elongated barrel actually represents the

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length of time during which the gasses can be released for sound reduction. The longer the barrel, the more time to release the gases at a controlled rate which results in less noise. None of the cited references teach or suggest reduction in noise through the use of an elongate vented barrel. For at least this additional reason applicant's claims are in condition for allowance. Applicant respectfully requests that the obviousness rejection of claims be withdrawn.

It is only through hindsight that one can now associate the limited teaching of porting near the muzzle end of a barrel to the sound reduction as taught by applicant. This is impermissible, as obviousness is based on the knowledge available at the time of the invention not that which has come to light through the invention.

Formalities

Should the Examiner have any questions concerning this Amendment, then the Examiner is cordially invited to contact the undersigned by telephone, facsimile, and/or E-Mail at the below identified address. If an extension of time is required to make this response timely and no separate petition is enclosed, Applicant hereby petitions for an extension of time sufficient to make the response timely. Applicant has enclosed herewith a Petition for a three month extension of time with the appropriate fee of \$510.00. In the event that the response herein requires the payment of additional government fees and payment is not enclosed, please charge Deposit Account No. 22-0350.

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Conclusion

In view of the foregoing, it is believed that claims 1, 3, 5-6, 8-9, 12, 14-15, 17, 19 and 21-24, in the present application are in condition for allowance. Applicant respectfully requests reconsideration of the claims herein and that the rejections be withdrawn and the claims allowed. Early action and notification to that effect is earnestly solicited.

Respectfully submitted,

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